

**Emilios Avgouleas\***

## **The Global Financial Crisis, The Disclosure Paradigm, and European Financial Regulation: The Case for Reform**

### **Abstract**

The global financial crisis has exposed the many limits of disclosure as an effective regulatory tool in the context of financial markets. Most of the risks that led to the creation of the 2008 catastrophe were often fully disclosed but the markets failed to understand what was disclosed and appreciate the implications. The reasons for this failure were product complexity and the impact of socio-psychological factors such as bounded rationality, strategic trade behaviour (herding), and cognitive biases. Yet much of European Financial Regulation is based on the disclosure paradigm to remedy market failure and prevent abuse. Therefore, the EU needs to devise strategies that make disclosure work under actual (not hypothetical) market conditions. It is argued that only through the use of experiments, as a complement to empirical studies, EU policy-makers will be able to measure the actual impact of disclosure on investor protection. A conclusion that may be drawn from past studies is that default options in a variety of financial contracts are a better alternative to disclosure for retail investors with low levels of financial sophistication. If future studies confirm this finding, then the EU should consider whether an independent EU financial products committee is a better investor protection strategy than increased disclosure in the case of unsophisticated investors.

**Keywords:** EU Banking Regulation, EU Securities Directives, Mandatory Disclosure, Global Financial Crisis, Subprime lending, Credit Ratings, Behavioural Decision Theory, Irrational Exuberance, Bounded Rationality, Strategic Trade Behaviour, Basel Capital Adequacy Accord, Experimental Law and Economics

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## INTRODUCTION

In an attempt to clean up US markets from abuse in the post-1929 crash era, the Roosevelt administration created widespread disclosure regimes for securities issuers and traders by means of the so-called New Deal Statutes: mainly Securities Act 1933<sup>1</sup> and Securities and Exchange Act 1934.<sup>2</sup> The example of the New Deal Statutes was closely followed by most EU Securities Directives, which fully incorporated the disclosure paradigm.<sup>3</sup>

However, disclosure completed its ascent to the ‘regulatory Olympus’ in the past twenty five years for reasons that had little to do with the battle against fraud and market abuse. With the advent of financial liberalization and with the aid of modern finance theory, but not with its full endorsement, policy-makers and regulators came to view financial markets as an agglomeration of rational investors, who make optimal resource allocation and wealth maximization decisions, when provided with sufficient information and appropriately structured economic incentives. So all regulators had to do to safeguard efficient markets and help investors was to ensure that a vast volume of pertinent information entered the public domain in any given area of financial market activity. Then, on the basis of all available information, market actors would adjust their investment decisions, positions, and strategies to information’s content and the market would essentially regulate itself. Namely, profit maximizing rational investors would adjust their strategies to new information and changing market conditions monitoring each other’s behaviour and ‘correcting’ mis-pricings through arbitrage, so that efficient markets may be perpetuated. Thus, no further consideration was usually given to other very important issues, such as the question whether market actors used all of the disclosed information and if so what kind of decisions they took on the basis of abundant supplies of information.

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<sup>1</sup> Securities Act of 1933, 15 U.S.C. § 77a to 77mm (1994).

<sup>2</sup> Securities Exchange Act of 1934, 15 U.S.C. § 78a to 78mm (1994).

<sup>3</sup> E.g., Directive 2003/71/EC of the European Parliament and of the Council of 4 November 2003 on the Prospectus to be Published When Securities are Offered to the Public or Admitted to Trading and Amending Directive 2001/34/EC, 2003 O.J. (L 345) 64 [hereinafter the *Prospectus II Directive*]; Directive 2004/109/EC of the European Parliament and of the Council of 15 December 2004 on the Harmonization of Transparency Requirements in Relation to Information About Issuers Whose Securities are Admitted to Trading on a Regulated Market and amending Directive 2001/34/EC, 2004 O.J. (L390) 38 [hereinafter the *Transparency Directive*]; Directive 2003/6/EC of the European Parliament and of the Council of 28 January 2003 on Insider Dealing and Market Manipulation (market abuse), 2003 O.J. (L 96) 16 [hereinafter the *Market Abuse Directive*]; Commission Directive 2003/124/EC of 22 December 2003 Implementing Directive 2003/6/EC of the European Parliament and of the Council as Regards the Definition and Public Disclosure of Inside Information and the Definition of Market Manipulation, 2003 O.J. (L 339) 70.

As a result, based on the rational investor model, modern financial regulation stretched the disclosure paradigm and reliance on self-regulation way beyond its original realm of issuer disclosure and prevention of market abuse to financial services consumer (retail investor) protection and even prudential regulation with mixed results. For example, disclosure was utilized, in lieu of protective regulation (*e.g.*, position limits), as a principal supervisory tool in banking regulation. The third pillar of Basle II<sup>4</sup> (market discipline) mandates the extensive disclosure obligations for banks operating under this framework, on the assumption that timely informed rational actors are capable to act as supervisors and enforcers of prudential regulation rules. Essentially, Basle II gave to market self-regulation a crucial and strategic role in preventing institutional collapses and systemic crises. The EU fully endorsed that view by premising on Basle II the Capital Requirements Directive 2006<sup>5</sup> and its twin Directive 2006/48 for the taking up and pursuit of the business of credit institution.<sup>6</sup> The two Directives provide the foundations of EU's harmonized prudential regulation regime for banks, which governs the licensing and supervision of banks by member state authorities. For the reasons explained in section 3, this view was seriously flawed, and the way banking markets have behaved in the course of global financial markets also proved that it was dangerous.

Given the predominance of the disclosure-based rational investor model on policy-makers', analysts', and regulators' thinking, it is not surprising that inadequate disclosure has been widely cited as almost the sole cause of the global financial crisis.<sup>7</sup> As this argument goes, investors had insufficient information regarding the risks involved in structured securities, such as asset backed securities (ABS),<sup>8</sup> collateralized debt obligations (CDOs),<sup>9</sup> and credit default swaps (CDS),<sup>10</sup> the

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<sup>4</sup> Basel Committee on Banking Supervision, 'International Convergence of Capital Measurement and Capital Standards, A Revised Framework', Updated November 2005, [hereinafter *Basel II Accord*].

<sup>5</sup> Directive 2006/49/EC of the European Parliament and of the Council of 14 June 2006 on the capital adequacy of investment firms and credit institutions 2006 O.J. L (177)201.

<sup>6</sup> 2006 O.J. L (177)1.

<sup>7</sup> *Policy Statement on Financial Market Developments* (The President's Working Group on Financial Markets, March 2008).

<sup>8</sup> ABS is normally a security whose value and income payments are derived from a specified pool of underlying assets, which may be credit card or auto loans, mortgages, claims from leasing contracts etc. The assets in the

flaws and limitations of credit ratings, and the impact of excessive executive compensation. Had rational investors been given higher quality information they would have approached structured credit securities with caution and they would not have been overexposed to these markets. Also well informed capital markets would have punished companies with executive and trader compensation schemes that fostered short-termism, inspite of bringing to them mega-profits.

The inadequate disclosure critique has not, however, been fully endorsed by all analysts of the global financial crisis. A minority of commentators have argued that closer examination shows that investors had in many cases sufficient information about the risks of their investment strategies and of the financial products used to implement them.<sup>11</sup> Yet market actors could not properly process available information in those cases and adjust their positions to the riskiness of structured credit securities for a variety of reasons. First, due to product complexity, boundedly rational investors failed to understand the mechanics and risks of shadow banking and structured credit securities.<sup>12</sup> Second, because of market players' tendency to herd, responding strategically to other market actors' behaviour, these did not have the capacity or the desire to use in a rational way the disclosed information and take contrarian positions. Third, the influence of other behavioural factors such as the

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pool usually may not be sold individually and by gathering them in a pool of assets and selling them to a special purpose vehicle, the asset seller transforms illiquid assets to a liquid source of income.

<sup>9</sup> CDOs are typically set up by investment banks or fund managers and comprise securitized interests in pools of generally non-mortgage assets. Assets in the pool, called collateral, usually comprise loans or debt instruments and are called collateralized loan obligations (CLOs) or collateralized bond obligations (CBOs) depending on whether the collateral is only loans or bonds respectively.

<sup>10</sup> CDS is a swap in which two parties enter into an agreement whereby one party pays the other a fixed periodic coupon for the specified life of the agreement. The other party makes no payments unless a specified 'credit event' occurs. CDSs are normally concluded under the ISDA architecture and 'credit events' are typically defined to include a material default, bankruptcy or debt restructuring for a specified reference asset. If a 'credit event' occurs, the party makes a payment to the first party, and the swap then terminates. The size of the payment is usually linked to the decline in the reference asset's market value following the occurrence of such 'credit event'.

<sup>11</sup> Steven Schwarcz, 'Disclosure's Failure in the Subprime Mortgage Crisis' (2008) *Utah Law Review* 1109. Schwarcz accurately notes: 'In the subprime mortgage crisis, there is to date relatively little dispute that the disclosure documents describing MBS, CDO, and ABS CDO securities and their risks generally complied with the federal securities laws.' *Id.* 1113.

<sup>12</sup> Steven Schwarcz, 'Protecting Financial Markets: Lessons from the Subprime Mortgage Meltdown' (2008) 93 *Minnesota L. Rev.* 373.

use of heuristics,<sup>13</sup> and investor overconfidence in times of market euphoria, because of abundance of easy credit and rising market prices, meant that investors chose to ignore the warning signals in the disclosed data in favour of over-reliance on credit ratings.<sup>14</sup> Arguably, the view taken by this second group of commentators makes the inadequate disclosure argument a much less powerful explanation of the global financial crisis and the initial focus on increased disclosure, as the lynchpin of global regulatory reform, puzzling!

It is not, therefore, surprising that more recently sceptical voices are raised, at the highest level, about the view that holds increased disclosure as the remedy for all market illnesses, with the recent Turner Review being the leading example.<sup>15</sup> The above findings are not totally lost on global policy makers either. Thus, while the Washington Summit of the G20 in November 2008 fully endorsed the inadequate disclosure critique and declared the willingness of its members to redress disclosure failures and enhance the transparency of global financial markets, the G20 summit in April 2009 took a much more balanced view, placing also significant emphasis on protective regulation and the imposition of restrictions on market activities that were highly implicated in the building up of the crisis, chiefly shadow banking.<sup>16</sup>

This paper sets out to investigate whether the standing of disclosure as the centrepiece of EU financial regulation (comprising securities and banking regulation) is justified in the post global financial crisis era. In this context it opens two lines of enquiry. First, it investigates the constraints

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<sup>13</sup> The best analysis of the limitations that financial product complexity posed for investors' understanding of them and the catastrophic consequences of this limited understanding is Steven Schwarcz, 'Regulating Complexity in Financial Markets', Duke Public Law & Legal Theory Research Paper Series No. 217, revised February 26, 2009.

<sup>14</sup> Emiliios Avgouleas, 'The Global Financial Crisis, Behavioural Finance and Financial Regulation: In Search of a new Orthodoxy' (2009) 9 *Journal of Corporate Law Studies* 121-157

<sup>15</sup> FSA, 'The Turner Review, A Regulatory Response to the Global Banking Crisis', March 2009. Lord Turner is not an outspoken academic critic of financial capitalism who has just grabbed his once in a lifetime opportunity to lambast global finance. He is the chairman of the FSA. A while ago he was the director of the Confederation of British Industry (CBI). Thus, his damning analysis of the various regulatory failures that aided the building up of the global financial crisis must be heeded and his preliminary recommendations developed further and implemented.

<sup>16</sup> 'The Global Plan for Recovery and Reform statement issued by the G20 leaders', 2 April 2009, available at <http://www.number10.gov.uk/Page18914> (last visited on 2 May 2009).

that disclosure-based market discipline faces; second, it considers the value of extensive disclosure in financial markets under conditions of complexity. In this context, it discusses the impact of socio-psychological factors on investor decision-making. Consequent to these analyses the chapter argues that policy makers should try to understand disclosure's limitations and until this happens disclosure will remain a puzzling regulatory technique of a mythical standing and limited effectiveness.

The paper is divided in five sections. The first section is the present introduction. The second section provides a concise overview of the main welfare benefits of disclosure rules. It also examines the limitations of disclosure regulation under the lens of behavioural decision theory. The third section explains how inadequate disclosure, as well as investors' flawed use of information, due to socio-psychological factors, built many of the conditions that led to the global financial crisis. The fourth section provides a number of proposals that can help to place disclosure techniques on a more effective and realistic footing in the context of European financial regulation. It is proposed that with respect to prudential regulation disclosure should only be seen as supplement to strict protective rules, such as institutional segregation of commercial and investment banking and position limits. In the field of investor protection regulation, it is suggested that disclosure's effectiveness may increase if relevant rules adapt to actual market conditions. Arguably, this may only be achieved through the extensive use of empirical studies complemented by properly calibrated economic experiments.<sup>17</sup> The fifth section brings the strands of the present discussion to a comprehensive conclusion.

## **2. The Benefits and Limitations of Disclosure Regulation**

### *2.1 Disclosure as a tool to promote efficient markets and protect investors*

Disclosure has been regarded as one of the most potent tools of corporate and financial market regulation for six reasons<sup>18</sup>: (a) by increasing publicly available information, it enables market actors

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<sup>17</sup> See for an overview of experimental methods to test legal rules Colin Camerer and Eric Talley, 'Experimental Study of Law', in A.M Polinsky and S Shavell (eds.), *Handbook of Law and Economics*, (Amsterdam: North-Holland, 2007), 1619-1650.

<sup>18</sup> For an overview of the many studies that provide an economic analysis of the merits and de-merits of disclosure regulation see Emiliios Avgouleas, *The Mechanics and Regulation of Market Abuse, A Legal and Economic Analysis* (OUP, 2005), 173-183. The two most convincing academic analyses in favour of disclosure regulation are J. Coffee, 'Market Failure and the Economic Case for a Mandatory Disclosure System', (1984) 70

to make informed investment decisions, (b) it improves market efficiency: increased availability of information leads to better pricing of securities and of other financial instruments enhancing allocative efficiency, (c) it reduces the cost of information searches, which, when excessive, is pure social waste in zero sum securities markets; (d) it fosters fair, ethical, and competitive markets, as it obliterates (along with prohibitions of insider dealing) the information advantage that insiders enjoy over outsiders in financial markets, (e) it may help market stability by containing market volatility that is usually caused by limited information regarding the merits or risks of financial products, and (f) it deters fraud; as the much celebrated US Supreme Court Justice Louis Brandeis observed almost nine decades ago, ample provision of information is the best 'disinfectant' of the markets driving out abuse, which may be easily identified under conditions of transparency.

Arguably, some of the aforementioned benefits of disclosure regulation not only are undisputable but also have served multiple causes. For instance, mandatory (securities issuer) disclosure not only has helped to improve the integrity of securities markets, it has also advanced the cause of democratic capitalism by eradicating the information advantages of the established economic elites, where corporate insiders normally belong. However, the above benefits are not the sole reason that disclosure has become the cornerstone of modern financial regulation. And it is neither because it is an inexpensive or non-intrusive regulatory technique. It is both very costly and intrusive for the subject of relevant disclosure requirements, whether a securities issuer or a financial firm. Regardless of context, *e.g.*, periodic issuer disclosure, offer prospectus etc., an army of auditors, lawyers, and compliance officers are assigned the task of processing and verifying disclosable information. As mentioned in the first section, disclosure's ascent is rather due to the pre-eminence of rational choice theory in modern financial regulation.

In one way or another rational choice theory proposes that human agents strive to maximize their utility from a stable set of well-defined preferences accumulating, in the process, an optimal

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*Virginia Law Review* 717 and James Cox, 'Insider Trading and Contracting: A Critical Response to the "Chicago School"', (1986) *Duke Law Journal* 628. Other authors have dismissed the benefits of mandatory disclosure mostly because of the high costs of compliance it entails. Also because of a quasi-metaphysical belief in self-correcting efficient markets that make the mandatory disclosure of information unnecessary. *E.g.*, Frank H Easterbrook and Daniel R Fischel, 'Mandatory Disclosure and the Protection of Investors' (1984) 70 *Virginia Law Review* 669.

amount of information and other inputs in a variety of contexts.<sup>19</sup> Thus, in the face of uncertain outcomes, individuals will choose a decision or a course of action that maximizes expected utility, so called *expected utility hypothesis*, first clearly expressed by Daniel Bernoulli in 1738,<sup>20</sup> and further refined by the two leading game theorists: Von Neumann and Morgenstern.<sup>21</sup> Namely, the ‘homo economicus’ is supposed to act to maximize expected utility, because his/her preferences are given, consistent, and representable in the form of a utility function.

Provision of information becomes very important in this model of decision-making, because, where individuals operate in conditions of uncertainty about the results of their actions, they are assumed to be able to assess the probability distribution in accordance with their level of knowledge. If new information can be collected from the environment and individuals know the information's possible content they assess it, in accordance with Bayes' law, by calculating the probability distribution based on the interplay between the new information's content and their prior knowledge.

## 2.2 Limitations of Disclosure Regulation

### (a) Prospect Theory, Experimental Economics, and Disclosure Regulation

As mentioned above under the rational investor model of regulation, disclosure leads to informed investment decisions in accordance with investor risk and return preferences. Thus, rational and self-disciplined wealth maximizing investors need large volumes information in order to calculate the risk and return possibilities of an investment, in order to maximize their expected utility (expected profit) in accordance with their risk and return preferences.

This is also the first statement that would fall foul of a Prospect Theory analysis of disclosure. Kahneman and Tversky's Prospect Theory<sup>22</sup> constitutes the core of so-called psychology of choice

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<sup>19</sup> See Gary S. Becker, *The Economic Approach to Human Behavior* (1976), 14 and Richard Posner, *Economic Analysis of Law* (6<sup>th</sup> ed., 2003), chs. 1-3.

<sup>20</sup> D. Bernoulli, ‘Exposition of a New Theory on the Measurement of Risk’ originally published in 1738 and reproduced in (1954) 22 *Econometrica* 23.

<sup>21</sup> John Von Neumann and Oskar Morgenstern, *Theory of Games and Economic Behavior* (1944).

<sup>22</sup> See D. Kahneman and A. Tversky, ‘Prospect Theory: An Analysis of Decision under Risk’ (1979) 47 *Econometrica* 263.



and judgement, one of the two pillars of Behavioural Decision Theory (BDT).<sup>23</sup> Prospect Theory assumes that preferences are not constant and choice may be manipulated through the framing of information. If the assumptions of Prospect Theory are correct, namely that by changing a reference point human actors' evaluation of gains and losses will change and that in any case individuals' ability to make actuarial calculations is limited, then the utility of the provision of vast amounts of information to both retail and institutional investors looks much diminished. These limitations make disclosure even less effective as a regulatory technique that helps investor decision-making, if the effects of problem description or framing<sup>24</sup> are also taken into account. Barberis and Thaler note that there are numerous demonstrations of a 30%-40% shift in preferences depending on the wording of a problem.<sup>25</sup> This means that individuals' choices can be manipulated depending on the way relevant information is presented. The effect of framing is stronger among the less sophisticated members of any group.<sup>26</sup> However, even thoughtfulness is not sufficient to counter the effect of framing; thoughtful individuals are still in need of a relevant cue in order to untangle the impact of framing.<sup>27</sup>

The assumption that preferences are not affected by variations of irrelevant features of options or outcomes, namely, that choices are independent of the problem description or representation, called extensionality<sup>28</sup> or invariance,<sup>29</sup> is an essential aspect of rational choice theory. As explained in the next section, the impact of the aforementioned behavioural factors was very evident in exposing the limitations of disclosure in the context of global financial crisis.

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<sup>23</sup> The other pillar is of course experimental economics. Experimental economics reflects equally the rational and behavioural intellectual traditions. Its main findings do not discard rational choice theory; they merely challenge the idealistic foundations of neo-classical economics that people exhibit unbounded rationality, pure self-interest, and complete self-control when making economic decisions.

<sup>24</sup> Amos Tversky and Daniel Kahneman, 'Rational Choice and the Framing of Decisions' (1986) 59 *Journal of Business* S251-S278.

<sup>25</sup> Nicholas Barberis and Richard Thaler, 'A Survey of Behavioral Finance' National Bureau of Economic Research, Working Paper No. 9222, 20 September 2002, 20.

<sup>26</sup> R. A. LeBoeuf and E. Shafir, 'Deep Thoughts and Shallow Frames: On the Susceptibility to Framing Effects' (2003) 16 *Journal of Behavioral Decision Making* 77.

<sup>27</sup> *Ibid.*

<sup>28</sup> K. J. Arrow, 'Risk Perception in Psychology and Economics' (1982) 20 *Economic Inquiry* 1.

<sup>29</sup> Tversky and Kahneman, above n 22.

Nonetheless, the above is not the full story. Neither the critical importance of disclosure in promoting clean markets and protecting investors should be easily dismissed nor should rational choice theory be proclaimed dead. In fact, there is plenty of empirical and experimental evidence that validates and refutes the assumptions of both BDT and rational choice theory. For example, experimental economics shows that in reality human activity is diffused and dominated by unconscious, autonomic, neuropsychological systems.<sup>30</sup> These enable people to function effectively without always calling upon the brain's scarcest resource: attentional circuitry. However, through trial and error learning, individuals may eventually make decisions that are compatible with expected utility theory.

This conflicting evidence leads to the plausible assumption that ‘human decision-making is simply a more nuanced phenomenon than unitary-process theories permit.’<sup>31</sup> According to Arlen and Talley this means that human actors<sup>32</sup>:

[M]ay employ multiple decision-making programs concurrently, and the actuation of each program may depend on the underlying context in systematic ways. In some contexts, conscious decision-making may share many features of Rational Choice Theory. In other moments, unconscious or intuitive processes may intervene, affecting the information that reaches our deliberative processes, the weight we give to various pieces of information, the time and attention devoted to choosing through deliberation, and our willingness to choose based on the outcome of deliberation instead of an “intuition” about what is right.

The above observation essentially means that, instead of focusing on the unitary theories of decision-making like rational choice and prospect theory, it is better to understand human decision-making as the product of multiple-processes.<sup>33</sup> As a result, individual cognitive processes may become dominant

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<sup>30</sup> See Vernon L. Smith, *Papers in Experimental Economics* (1991) and John H. Kagel and Alvin E. Roth (eds), *The Handbook of Experimental Economics* (1995).

<sup>31</sup> Jennifer H Arlen and Eric L Talley, ‘Introduction’, in Arlen and Talley (eds), *Experimental Law and Economics* (Elgar, 2008) xix. This work has also appeared as Arlen and Talley, ‘Experimental Law and Economics’, New York University Law and Economics Working Paper 149, 2008.

<sup>32</sup> *Ibid*

<sup>33</sup> *Ibid.* xviii-xx.

in different context-specific situations and cross-context comparisons may potentially lead to observed inconsistencies in behaviour.<sup>34</sup>

It is the author's view that the phenomenally inconsistent way that market actors use disclosed information constitutes evidence of employment of multiple decision-making programmes concurrently. This view is further re-enforced by the emerging discipline of neuroeconomics,<sup>35</sup> which, relying on the findings of neurosciences, increasingly views human actors as (often simultaneous) users of multiple decision-making programmes. In fact, neuroeconomics has raised doubts as to whether the two identified systems of decision-making even exist/operate separately. Three well known neuroscientists have noted in a recent paper: "[t]here is, for example, no evidence that there is an emotional system, per se, and a rational system, per se, for decision making at the neurobiological level."<sup>36</sup> They have added that viewing the human brain as a collection of two distinct decision-making processes/systems, one emotional/irrational, and one deliberative/rational may serve well economists trying to make sense of human behaviour but it has no grounds in neurobiology.<sup>37</sup>

Taking into consideration the above observations, it is assumed that it would be difficult, probably impossible, to untangle conscious and deliberative processing of disclosed information by market actors in order to evaluate its impact on their decision-making. Relevant research would

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<sup>34</sup> *Ibid.* xviii.

<sup>35</sup> Colin F. Camerer, George Loewenstein, and Drazen Prelec, "Neuroeconomics": How Neuroscience Can Inform Economics' (2005) 43 *Journal of Economic Literature* 9–64. See also Paul W. Glimcher, Colin Camerer, Russell Alan Poldrack, Ernst Fehr (eds), *Neuroeconomics: Decision Making and the Brain* (Academic Press, 2008), esp, ch 4: 'Neuroeconomics: Formal Models of Decision Making and cognitive neuroscience', by Aldo Rustichini 33-45 and ch 15: 'Social preferences and the brain', by Ernst Fehr 215-230. A concise journalistic analysis of the origins development and main findings of neuroeconomics may be found in John Cassidy, 'MIND GAMES - What neuroeconomics tells us about money and the brain', *The New Yorker*, 18 September 2006.

<sup>36</sup> Paul W. Glimcher, Michael C. Dorris and Hannah M. Bayer, 'Physiological Utility Theory and the Neuroeconomics of Choice' (2005) 52 *Games Econ Behav.* 213-256

<sup>37</sup> 'Recently, a number of economists have begun to suggest, at a psychological level, that human decision making can be broken down into two categories; typically rational and irrational . . . What we cannot stress strongly enough is that the vast majority of evolutionary biologists and neurobiologists reject this view. There are probably two principle reasons that biologists reject this dualist view of the nervous system; one neurobiological and one behavioral. First there is no neurobiological evidence that emotional and non-emotional systems are fully distinct in the architecture of the primate brain. Second, there is no evidence that rational and irrational behavior are the product of two distinct brain systems, one of which is uniquely rational and one of which is uniquely irrational.' *Ibid.*

possibly show that sometimes the disclosed information is used in a deliberative way leading to outcomes that are consistent with rational choice theory. Other times, non-conscious (intuitive), automatic decision-making processes will be found to account for market phenomena that do not fit with the rational choice prescribed outcomes and are called by behavioural finance scholars ‘market puzzles’ or ‘anomalies’.<sup>38</sup> Because these automatic processes intervene, short-circuit, or overrule deliberative processes they may develop into a cognitive bias, which induces behaviour inconsistent with rational choice/expected utility theory.<sup>39</sup> As explained in section 4 below, this finding, also means that only through the use of both empirical and experimental studies the actual value of disclosure as a protective regulatory technique may be properly ascertained leading to the formulation of disclosure policies, techniques, and formats that really aid individual investor and market welfare.

(b) Bounded rationality and herding as a barriers to rational reaction to disclosed information

There are two additional factors that seem to limit the effectiveness of disclosure. First, bounded rationality<sup>40</sup> may account for market actors’ limited understanding of disclosed information regarding highly complex financial instruments.<sup>41</sup> Second, herding (strategic trading behavior), either due to peer pressure or in response to career/reputational concerns, also means that disclosed information is ignored in favour of the safer ‘follow the herd’ strategy.<sup>42</sup> Thus, herding places a very powerful limitation to rational reaction to all kinds of disclosed information.

Because individuals are boundedly rational, as securitisation markets grew and products became more complex, expert investors showed limited capacity for understanding the disclosed mechanics and calculate the attendant risks of structured credit products and for developing tools to

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<sup>38</sup> See Barberis and Thaler, *A Survey of Behavioral Finance*, above n 25.

<sup>39</sup> Arlen and Talley, above n 31, xix, xx, xxviii.

<sup>40</sup> This concept was introduced as a potential determining factor in the making of economic decisions by Herbert Simon. See Herbert A. Simon, ‘A Behavioral Model of Rational Choice’ (1955) 69 *Quarterly Journal of Economics* 99; Simon, ‘Rationality as Process and Product of Thought’ (1978) 68 *American Economic Review: Papers and Proceedings* 1. Essentially it means that individuals have limited ability to process information because of their limited computational ability and flawed memory.

<sup>41</sup> See Schwarcz, above nn 11-13.

<sup>42</sup> See Schwarcz, above n 12 and Avgouleas, above n 14.

value them. Instead, as explained in paragraph 3(2) below, investors replaced rigorous credit controls and valuation models with over-reliance on credit ratings.

Furthermore, institutions' herding has been recognized as one of the main builders and amplifiers of the crisis in the recent review of Lord Turner into the causes of the global financial crisis.<sup>43</sup> Herding is often due to irrational exuberance. Yet it is even more caused by the 'beauty contests' described by Keynes,<sup>44</sup> in their post-modern form, which intrinsically links them to the agency problem.

Bank shareholders' or institutional investors' money is today managed by expert individuals, who allocate, as agents, the money of their principals. Their interests, as in most principal-agent relationships, are not perfectly aligned and sometimes diverge considerably. While shareholders or fund investors are concerned, under the rational choice model, with an optimal mixture of risk and return that ensures sustained profitability, bankers' and fund managers' concerns are markedly different. They have to show that their performance is equal or better than the rest of the market.<sup>45</sup> Performance affects bonus payments and the bankers' and fund managers' tenure in the job.<sup>46</sup> Individuals, who work for institutional investors, are in the market in order to make money and save their jobs and not in order to 'correct' prices through arbitrage trading, as the Efficient Market Hypothesis (a direct brainchild of rational choice theory) assumes. Thus, they are very likely to follow the herd,<sup>47</sup> conveniently forgetting the value of painstaking risk-management controls and the costs of possible long-term market reverses.

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<sup>43</sup> Turner Review, above n 15.

<sup>44</sup> JM Keynes, *General Theory of Employment, Interest and Money* (New York: Harcourt Brace and Co, 1936), ch. 12.

<sup>45</sup> For an analysis of the impact of the principal-agent relationship (within financial institutions) on the failure of disclosure in the market for structured credit securities see Schwarcz, *Disclosure's Failure*, above n 13.

<sup>46</sup> See J. Chevalier and G. Ellison, 'Career Concerns of Mutual Fund Managers' (1999) 114 *Quarterly Journal of Economics* 389.

<sup>47</sup> P. Gompers and A. Metrick, 'Institutional Investors and Equity Prices' (2001) 116 *Quarterly Journal of Economics* 229; R. Wermers, 'Mutual Fund Herding and the Impact on Stock Prices' (1999) 54 *Journal of*

This might seem like a reasonable response to noise trader activity. Professional investors follow the herd and its trading choices playing the ‘momentum game’<sup>48</sup> in the hope that they will be able to sell and materialize their gains, before noise traders decide to sell. Namely, bankers, traders, and fund managers concentrate on trades and trading techniques that enable them, if not to beat the market, at least, not to post returns inferior to the market average saving their jobs and securing large compensation packages.<sup>49</sup> However, as their reaction prolongs and deepens an eventual asset bubble,<sup>50</sup> the short-term and non-contrarian nature of their behaviour goes counter to game theory (strong) view of rationality.<sup>51</sup> The next section explains both the role of inadequate disclosure in building up the conditions that led to the global financial crisis and the way the crisis has exposed disclosure’s limitations.

### **3. The Global Financial Crisis and the Impact of (In)adequate disclosure**

#### *3.1 The Rational Choice Critique*

Inadequate disclosure is blamed for building up the conditions that created the global financial crisis in five contexts: (a) inadequate disclosure of risks to subprime borrowers, (b) opacity of highly structured financial products, which also incorporated very complex pricing formulas, and sometimes possible obfuscation by financial institutions of the risks associated with such products, inspite of relevant legal and regulatory requirements, (c) inadequate disclosure by financial institutions of their

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*Finance* 58; see also D. S. Scharfstein and J. Stein, ‘Herd Behavior and Investment’ (1990) 80 *American Economic Review* 465.

<sup>48</sup> M. Grinblatt, S. Titman, and Russ Wermers, ‘Momentum Investment Strategies, Portfolio Performance, and Herding: A Study of Mutual Fund Behavior’ (1995) 85(5) *American Economic Review* 1088-1105; D. Hirshleifer and Siew H. Teoh, ‘Herd Behaviour and Cascading in Capital Markets: a Review and Synthesis’ (2003) 9(1) *European Financial Management* 25-66.

<sup>49</sup> Paul M. Healy and Krishna Palepu, ‘Governance and Intermediation Problems in Capital Markets: Evidence from the Fall of Enron’ (2003) 17 *Journal of Economic Perspectives* 3-26.

<sup>50</sup> J. R. Nofsinger and R. W. Sias, ‘Herding and Feedback Trading by Institutional and Individual Investors (1999) 54 *Journal of Finance* 2263.

<sup>51</sup> John Nash, ‘Equilibrium Points in n-person Games’ (1950) 36 *Proceedings of the National Academy of the USA* 48 and Nash, ‘Non-Cooperative Games’ (1951) 54 *Annals of Mathematics* 286.

on- and off-balance sheet exposures, (d) inadequate disclosure by CRAs of the limitations of credit ratings and their conflicts of interest, and (e) inadequate disclosure of the short-termist nature of executive and trader compensation.

It is an undisputable fact that as regards structured credit products lack of standardization, and in the case of CDS inherently limited, if not non-existent, disclosure, meant that the market had considerable difficulty to fill the gaps and properly evaluate the risks of those securities. Thus, it could not price them with any degree of accuracy. This built uncertainty that eventually gripped the markets, following the trigger of the credit crisis. The same uncertainty also prevented new entrants to the structured products market. Furthermore, banks either deliberately or because of their own ignorance gave the market incomplete information regarding their on- and off-balance sheet exposures to structured credit products. As a result, fears about the true size of their exposures led to considerable reluctance by counterparties to trade and the subsequent amplification of the market turmoil.

Moreover, in the highly complex and fast moving environment of global financial markets it is easy for regulators to make the wrong choice regarding the kind of data that has to be disclosed. Thus, either because of the nature of Basle Capital Adequacy standards<sup>52</sup> or of inherently flawed or the poorly thought of supervisory focus on institutional capital adequacy,<sup>53</sup> financial intermediaries were not requested to make any kind of assessment of the systemic implications of their market activities nor did they have to disclose such assessment.

However, in other areas there was considerable disclosure of information regarding the risk of investment products and techniques that have been highly implicated in the building up and amplification of the global financial crisis. In those cases, market actors either did not read properly the warning signals or did not understand or acted on the disclosed information. An unbiased observer would particularly focus on three areas of protective regulation where disclosure as regulatory

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<sup>52</sup> See in general, Markus Brunnermeier, Andrew Crockett, Charles Goodhart, Avinash D. Persaud, and Hyun Shin, 'The Fundamental Principles of Financial Regulation', Geneva Reports on the World Economy 11, January 2009, ch. 4. Also called the Goodhart Report.

<sup>53</sup> Martin Hellwig, 'Systemic Risk in the Financial Sector: An Analysis of the Subprime-Mortgage Financial Crisis', Max Planck Institute for Research on Collective Goods Bonn 2008/43, November 2008, 56-60.

technique did not work as expected: (a) risk assessment/management, (b) prudential regulation/systemic stability, (c) consumer protection. These disclosure failures are analytically discussed in the next few paragraphs.

### *3.2 The BDT Critique*

#### (a) Risk Assessment

A recurring theme in every regulatory report on the causes of the global credit crisis is the role of lax risk management controls within financial institutions. The failures of internal risk management controls were concentrated in five areas: (a) failing credit control and borrower vetting standards, (b) inability to properly value positions in structured credit securities, (c) excessive reliance on credit ratings in spite of their widely known shortcomings, (d) inadequate use of information when this was provided, and (e) ignorance of senior bank management of the true function of Special Investment Vehicles (SIVs) and thus of the institution's actual exposure to them.<sup>54</sup> The cause of some of these failures, however, was not lack of information but inappropriate use of what was disclosed, due, no less, to behavioural factors.

For example, in the case of credit ratings, institutional buyers and sellers of structured credit securities used credit ratings in order to price them, when reliable price quotations were unavailable,<sup>55</sup> which in the case of structured credit products was not unusual. As a result, credit ratings came to play a key role in the 'valuation of customized or illiquid structured credit products'.<sup>56</sup> However, these highly sophisticated market participants knew all too well that the ratings produced by the major Credit Rating Agencies (CRAs) suffered several shortcomings. First, they were built to measure. Namely, the issuers of the products were using CRA know how and software in order to build baskets

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<sup>54</sup> According to the President's Working Group, these weaknesses 'were particularly evident with respect to the management of certain business lines: (a) CDO warehouses; (b) syndication of leveraged loans; and (c) conduit businesses (sponsorship or liquidity support for SIVs and other conduits that issued ABCP).' The President's Working Group on Financial Markets (PWGFM), *Policy Statement on Financial Market Developments* (March 2008), 15.

<sup>55</sup> IMF, *Global Financial Stability Report, 'Containing Systemic Risks and Restoring Financial Soundness'*, April 2008, 55.

<sup>56</sup> *Ibid.*



of securities that would ensure an AAA rating. Second, the insatiable appetite of global markets for credit ratings and the fact that the relevant market was highly oligopolistic - three major agencies: Standard & Poors, Fitch, and Moody's have traditionally dominated the market - meant that the industry suffered from a serious lack of incentives to seriously stress test credit ratings, a fact that was well known to most market professionals. Third, CRAs were often subject to considerable conflicts of interest, as the buyers of their ratings were the issuers whose products they rated.<sup>57</sup> Fourth, while CRAs in the case of structured credit securities, which normally bundle together underlying debt obligations emanating from a multitude of obligors, did not make public the estimated correlation of obligors in the asset pool, disclosure of the cross-correlations would greatly assist investors in assessing whether the rating is based on expectations that are in-line with their own. Finally, asset value in the case of securities is often intrinsically linked to the marketability/liquidity of a financial product but this parameter is not measured by credit ratings.

Of course, modellers and risk managers in most institutions understood very well the implications of the absence of such information and yet chose to continue relying on credit ratings. So it is really mystifying why so much importance was placed on ratings and why big, well resourced, and highly sophisticated banks and institutional investors chose to ignore all of the aforementioned faults and perform little or no in-house credit analysis of their investments.

Arguably, there are two ways to explain why big institutions chose to substitute proper analysis and due diligence for 'a subscription to a ratings publication'.<sup>58</sup> The rational choice explanation is that in order to economise in substantial research costs and thus facilitate transactions, investors choose to ignore the known flaws of credit ratings. Yet given how pronounced, serious, and well known were those flaws, this explanation does not sound convincing. Therefore, the second

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<sup>57</sup> For an excellent analysis of the Credit Rating Agencies' paradox see Steven L. Schwarcz, 'Private Ordering of Public Markets: The Rating Agency Paradox' (2002) *University of Illinois Law Review* 1.

<sup>58</sup> Mark Carney, 'Addressing Financial Market Turbulence', Remarks of the Governor of the Bank of Canada to the Toronto Board of Trade, 13 March 2008, 3-4.

explanation, which highlights the behavioural aspects of investor reliance on credit ratings, is also worth considering.

It is possible that investor ‘irrational’ reliance on credit ratings was the result of the operation of the *availability* and *representativeness heuristics*. Namely, market participants relying much more heavily on *heuristics* rather than any rational computations came to the conclusion that painstaking and accurate calculations of market value were not necessary for structured credit products. There was no memory of serious failures of the ratings process, since structured credit securities were predominantly new products without long trading histories. On the contrary, given also the prevailing conditions of market euphoria, credit ratings, in spite of their shortcomings, could serve as a usable, although inaccurate, benchmark of value so that trading and profiteering could go on. Namely, rational actors’ cognitive limitations and focus on short-term profit, forced sophisticated investors to ignore the warning signals. This explains both the incredible amount of trust placed on the ratings of CRAs and why these ‘had grown more powerful than anyone intended’.<sup>59</sup>

Additional credibility to the above argument is lent by that fact that, while investors and regulators were placing nearly blind trust on credit ratings, CRAs frequently warned the market about the true function of their ratings. Naturally, their warnings were neither very prominent nor widely publicized.<sup>60</sup> Yet a rational investor, given also their vast technical sophistication and expertise available to institutional investors, would have easily identified and properly incorporated them into their decision making model discounting instead of exaggerating the importance of credit ratings.

#### (b) Consumer protection

There is a rational choice explanation of the subprime crisis that focuses on inadequate disclosure of risks, especially once so called ‘teaser’ rates had ceased and interest payments adjusted to higher

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<sup>59</sup> IMF, *GFSR, Containing Systemic Risks*, above n 55, 56.

<sup>60</sup> *Ibid.* 55. ‘Although credit rating agencies insist that ratings measure only default risk, and not the likelihood or intensity of downgrades or mark-to-market losses, many investors were seemingly unaware of these warnings and disclaimers.’ *Id.*

rates, and of the mortgage brokers' conflicts of interest.<sup>61</sup> According to this approach US sub-prime borrowers did not obtain loans that they could not afford on the basis of their income, job prospects, and value of their asset, they simply did not have enough information to make a rational risk analysis of their investment. This approach is, of course, not inaccurate when it comes to the unscrupulous practices of US mortgage brokers, but it also greatly discounts an undisputable fact. US subprime borrowers were buying into a 'dream': the infinite rise of US housing market. Even if the risks of the mortgage were not properly disclosed it was not difficult to figure out that US housing price markets were at historical highs and this growth could not last forever. Nor was it a secret to both borrowers and lenders that they borrowed/lent money in excess of the already over-priced asset's value. Therefore, it seems unlikely that inadequate disclosure and sharp practice were the sole culprits of the explosion of US sub-prime loans.

Collective speculative fever, usually called irrational exuberance and, perhaps, the inherent inability of a segment of the population, due to low levels of education and financial expertise, to fully understand the risks involved were possibly more important factors. A rising US housing market, which was also followed by rising housing markets in most of western countries, led to credit consumer overconfidence. Namely, mortgage borrowers in the US and the rest of Western world, *anchored* to the prevailing environment of low interest rates and overconfident that rising house prices will last forever, rushed to jump on the property bandwagon, playing the 'momentum game'. In doing so they were rather reluctant to engage into careful calculations regarding the sustainability of their borrowings. Of course, if overconfidence and inability to make an informed financial decision were at the heart of consumers' credit decisions in the context of sub-prime loans, it is unlikely that consumers would have acted much differently, if they had been given accurate information about the risks of sub-prime lending and the conflicts of interest of the intermediating brokers.

At the same time, 'underwriting standards for U.S. adjustable-rate sub-prime mortgages weakened dramatically between late 2004 and early 2007' and mortgages were extended to borrowers

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<sup>61</sup> The Becker-Posner Blog, 'The Subprime Mortgage Mess--Posner's Comment', 23 December 2007, available at [http://www.becker-posner-blog.com/archives/2007/12/the\\_subprime\\_mo.html](http://www.becker-posner-blog.com/archives/2007/12/the_subprime_mo.html), (last accessed 24 March 2009).

with weaker credit histories.<sup>62</sup> Irrational exuberance and bounded rationality may account for the relaxed attitude of credit providers as much as the perverse incentives created by the originate-to-distribute model, which focused on commission earned from loan generation and not credit controls. Arguably, lenders were themselves gripped by overconfidence, because of easy availability of credit, due to excessive levels of liquidity in global financial markets, and rising asset prices. Also, they misunderstood, due to their complexity, the mechanics of innovative financial instruments and believed that credit risk they were transferring to SIVs through securitisations or to counterparties through CDSs was, in fact, disappearing from the system and from their balance sheets. This belief was totally flawed and just exhibited their limited understanding of financial innovation.<sup>63</sup>

### (c) Banking Regulation

The chief objective of banking regulation is the prevention of financial collapses, because they are highly contagious, due to the nature of the banking industry, and they can evolve, aided by market panic, to full scale financial cascades threatening the stability of the financial system. Probably the most important regulatory tool used to buttress banking institutions' financial health and soundness is the regulatory standards of so-called capital adequacy. The standards currently applicable to the majority of international banks are those fashioned by the Basel Committee on Banking Supervision. The third pillar of the Basel II Accord provides an increased number of regulatory and market disclosures by regulated banks in order to enhance market discipline.<sup>64</sup> This is based on the assumption that, if the regulatory capital positions and risk exposures of international banks are

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<sup>62</sup> PWGFM, *Policy Statement*, above n 54, 8.

<sup>63</sup> In fact, banks kept an exposure to the securitised loans with the lowest quality in order to make the issue desirable to investors. At the same time, credit risk was piling up in hidden parts of the system, because of shadow banking and credit default swaps, but did not at all disappear.

<sup>64</sup> Banks are required under the Basel II Accord to regularly disclose, inter alia, (a) the composition of their Tier 1 and Tier 2 capital, the total amount of capital, and the accounting policies they use for the valuation of their assets and liabilities, (b) an exposure assessment comprising information about the asset side of balance sheet, the different types of risk to which the bank is exposed and the amounts exposed, the method used for calculating those risks, the external credit agency used for the risk-weighting purposes, in the case of banks using the standardized approach, and general information on the risk assessment methodology used, in the case of banks using the Internal Ratings Based approach and the capital requirements for each different type of risk and the total capital requirements.

regularly disclosed, banks facing difficulties, because, for instance, they pursue risky business policies, will be restrained / disciplined, as the rest of the market will become increasingly unwilling to lend them money. Thus, disclosure has become one of the most important tools of monitoring and enforcement of capital adequacy regulation.

However, this view was either naïve or just exhibited a metaphysical belief in self-regulation. In the absence of properly calibrated objectives, because of the possibility of public bank rescues and deposit insurance, the role of market discipline is rather marginal.<sup>65</sup> The fact that all big banks enjoy an implicit public guarantee means, in practice, that even badly run banks will probably not be allowed to fail, and if they do the taxpayer and the deposit insurance scheme will cover most of creditors' losses. This means that, first the ailing bank's management can afford to continue behaving irresponsibly and, second, its creditors may continue lending it funds without any substantial fear of losses that institution's bankruptcy would entail, significantly weakening market discipline.

This obstacle to market discipline is magnified by the fact that by the very nature of its business the banking industry creates interconnectedness. This means that, first the ailing bank's management can afford to continue behaving irresponsibly and, second, its creditors may continue lending it funds without any substantial fear of losses that institution's bankruptcy would entail, significantly weakening market discipline.

This obstacle to market discipline is magnified by the fact that by the very nature of its business the banking industry creates interconnectedness. Given the operation of the government guarantee, banking institutions have a strong incentive to grow their asset book (loans), since the larger the institution becomes and the more inter-connected the more likely is that its failure will also

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<sup>65</sup> A view that was tentatively based on Charles W Calomiris and Charles M Kahn, 'The Role of Demandable Debt in Structuring Optimal Banking Arrangements' (1991) 81 *American Economic Review* 497-513. This analysis focused on the role of demandable bank debt in disciplining bankers. However, the strength of the countervailing power possessed by the 'too big to fail' doctrine and, of course, deposit insurance was not accounted for. To account for these limitations Calomiris argued in a subsequent article for banks to maintain a minimal proportion of subordinated debt finance, while at the same time restricting the means by which government recapitalization of insolvent banks occurred. See Charles W. Calomiris, 'Building an incentive-compatible safety net' (1999) 23 *Journal of Banking and Finance* 1499-1519.

drag down other inter-connected institutions. The Goodhart Report calls this risk the ‘interconnectedness spillover’.<sup>66</sup> Obviously, the bigger the institution and the more inter-connected the more likely that the government will rescue it in the event of failure.<sup>67</sup> This, in turn, creates a powerful perverse incentive to expand a banking institution’s balance sheet obliterating the restraining power of market discipline.

However, even if it was possible to eliminate moral hazard and fashion appropriate incentives so that bank creditors became effective monitors of banks, in which case extensive market disclosure would have been very useful, still market monitoring would mean little in terms of preventing institutional failures and/or safeguarding systemic stability for two reasons. First, as Hellwig observes<sup>68</sup>:

Because of systemic interdependence, the individual bank’s risk exposure cannot be ascertained by just looking at the bank’s assets and liabilities, on balance sheet and off balance sheet. If the bank’s asset position involves a certain risk and the bank has hedged this risk by contracting with a third party, the effectiveness of the hedge depends on the third party’s ability to fulfil its obligations when needed. If the risk in question is of macroeconomic dimension, an interest rate risk, exchange rate risk, or a housing-price risk, the counterparty’s ability to fulfil its obligation depends on how many similar contracts it has concluded with other market participants. If risk correlations across contracts are such that the counterparty to the hedge must deliver on many of them at the same time, this in itself may destroy the counterparty’s viability.

In today’s globalized markets, there is no private institution that possibly has the ability, resources, and access to information to be able to conduct a credit analysis of all other financial institutions, regulated and unregulated. Furthermore, even if such institution existed, the colossal costs of universal monitoring would far exceed the expected benefits.

Second, even if a financial institution behaves individually in a prudent way, or even if all financial institutions behave in a prudent, but un-coordinated, way a systemic crisis may not be averted. Especially in the event of a liquidity crunch even the prudent behaviour of one financial

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<sup>66</sup> Goodhart Report, above n 52, 20-21.

<sup>67</sup> *Ibid.*

<sup>68</sup> Hellwig, above n 53, 59-60. Hellwig accurately notes that: ‘The difficulties that the monoline insurers of credit risk in mortgage-backed securities have had over the past year – or the more recent crisis of AIG – provide a telling example of the problem.’ *Id.*

institution can create spillovers that may undermine the stability of other institutions leading to systemic instability. This problem is due to another (risk-spillover) externality: Fire-sales.<sup>69</sup>

According to the Goodhart Report:

[T]he fire-sale externality arises since each individual financial institution does not take into account the price impact its own fire-sales will have on asset prices in a possible future liquidity crunch. Hence, fire-sales by some institutions spillover, and adversely affect the balance sheet of others, causing a negative externality.

#### **4. What Future of Disclosure Regulation?**

##### *4.1 Prudential Regulation*

As mentioned in the introduction to this paper, none of the disclosure's limitations diminishes its importance. They just call for a radical rethinking of the disclosure paradigm in financial regulation. Arguably the pre-eminence given to disclosure as a regulatory technique by EU Securities Directives,<sup>70</sup> following the same pattern in US securities laws, is unwarranted, given also the costs it entails for the producer of the disclosed information, if information so disclosed is not properly processed by investors and does not target specific areas of market activity, where it is most effective. In other areas, such as banking regulation, disclosure is not sufficient to enforce, by means of market discipline, the prudent operation of individual institutions and the protection of the system from the risk of contagion.

In the field of banking regulation disclosure will remain a strong supervisory tool only if it is used to supplement the impact of protective rules. It is not accidental that both of the influential reviews of banking regulation issued in recent months: the Goodhart Report and the Turner Review place much more emphasis on revamped capital adequacy regulation and straightjacket protective rules and less, if any at all, on disclosure.

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<sup>69</sup> This externality was first explained in a model in John Geanakoplos and Heracles Polemarchakis, 'Existence, Regularity, and Constrained Suboptimality of Competitive Allocation When the Asset Market is Incomplete' in Heller, Starr, Starrett (eds), *Uncertainty, Information and Communication, Essays in Honor of Kenneth J. Arrow*, Vol. 3, (CUP, 1986) .

<sup>70</sup> E.g., Prospectus Directive II, Transparency Directive, Market Abuse Directive, above n. 3.

Proposals for the introduction of restraining protective regulation in banking markets include calls for the imposition of dynamic pre-provisioning obligations, so that banks set aside more capital in good times in order to restrain the credit flows to the economy that may feed asset bubbles,<sup>71</sup> and of an upper level (maximum gross) leverage ratio for banks.<sup>72</sup> Furthermore, academic commentators have suggested that inherent moral hazard in the banking industry, the cognitive limitations of human actors, the impact of the agency problem, and the inability of disclosure to solve any of these problems call for the imposition of restrictions on the kind of business activities savings and loans banks should undertake. The same commentators have called for the imposition of limits on the use of securitisation by commercial banks and of their exposure to the capital markets.<sup>73</sup>

Such restrictions would of course herald a radical transformation of regulatory thinking in this field at a global level, as reforms with a domestic focus are bound to prove ineffective due to regulatory arbitrage. They would also mean the separation of commercial banking from ‘casino banking’, as the Turner Review calls the capital market activities of banks.<sup>74</sup> At the EU level, where the mega-bank model has been happily embraced and championed by the banking Directives,<sup>75</sup> due to the continental European tradition and the influence of the Basle Accords, adoption of the above proposals would mean a radical reconceptualization of the prevailing bank business model that may be authorized to operate at a pan-European level.

#### *4.2 Can Economic Experiments Help?*

To the untrained eye the future of disclosure as a regulatory technique in the context of capital markets could look rather bleak. However, there are good reasons why this is not so, including the

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<sup>71</sup> Goodhart Report, above n 52, 35, 38-39, 59-60.

<sup>72</sup> Turner Review, above n 15, 7, 53, 95, 118.

<sup>73</sup> For a first approach and the description of this new licensing/supervisory model for the banking industry see Avgouleas, above n 14, 149-150.

<sup>74</sup> Turner Review, above n 15, 43, 94.

<sup>75</sup> Directive 89/646/EEC [1989] OJ L 386/1, replaced by Directive 2006/48/EC [2006] OJ L 177. The Second Banking Directive allowed deposit-taking European Banks to also engage in the kind of investment market activities that were usually reserved, at least outside of Germany, for securities firms and non-deposit taking investment banks



undisputable benefits disclosure brings in battling market abuse and democratizing capital markets and thus encouraging access to them, fostering liquid markets. What is really required is the adaptation of disclosure techniques, volume, format, and content to actual market conditions. Arguably, this means that disclosure regulation reform should be guided by empirical and experimental studies<sup>76</sup> that measure the actual impact of disclosed information, and thus the effectiveness of disclosure rules.

As mentioned in section 2, experimental studies may be particularly useful in this context. Experimental economics' focus on an ecological concept of rationality, which asks questions as to why a specific social practice, or a specific game, has been chosen instead of another, may be exactly what is needed to measure the true impact of disclosure rules on investor decisions and market efficiency. For instance, experimental economics holds that, in competitive markets, and financial markets are normally highly contested markets, institutions (the rules of the game) matter, because they determine information and private incentives.<sup>77</sup> But the incentives to which people respond are sometimes not those one would expect based on the canons of economic theory. Thus, it is very doubtful whether financial incentives could act as generalized substitutes to prescriptive regulation.<sup>78</sup>

Testing how expert and lay investors process, utilize, and strategically use disclosed information in the context of financial markets, in order to measure the impact of disclosure rules, will require highly complex and sophisticated experiments conducted by a broad alliance of lawyers, economics, psychologists, and regulators. Thus, relevant teams will probably present serious coordination issues. Furthermore, relevant experiments in order to have credibility they must engage real life investors, traders and other human participants trying to observe how these react to different

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<sup>76</sup> The value of experimental studies in testing financial regulation has also been stressed elsewhere, especially in evaluating the effectiveness of laws designed to limit market imperfections such as asset price bubbles in the context of complex adaptive markets. See Erik F. Gerding, 'Laws Against Bubbles: An Experimental-Asset-Market Approach to Financial Regulation' (2007) *Wisconsin Law Review* 977.

<sup>77</sup> Vernon L. Smith, 'An Experimental Study of Competitive Market Behavior' (1962) 70 *Journal of Political Economy* 111.

<sup>78</sup> For a summary of relevant studies see Gregory Mitchell, 'Why Law and Economics' Perfect Rationality Should not be Traded for Behavioral Law and Economics' Equal Incompetence' (2002) 91 *Georgetown Law Journal* 67.

pieces of information and what is the result of their reaction in terms of market outcomes. Naturally, conducting experiments with real life actors will require expending considerable public resources. Overall the number of experiments attempting to explain market actors' behaviour, including the way they react to differential volume of disclosed information, is on the rise.<sup>79</sup> Furthermore, as a recent experiment on herding behaviour in financial markets, conducted by IMF economists using market professionals, has shown the use of experiments in this context is both feasible and very useful to test theoretical assumptions.<sup>80</sup>

However, the use of experiments to test the impact of disclosure rules will not prove unproblematic. Given strong evidence that individuals do not use exclusively unitary processes of decision-making, as rational choice and prospect theory hold, but rely instead on multiple processes, means that what should be tested here is this new *meta-theory*, as Arlen and Talley call it.<sup>81</sup> According to the same authors: 'recognition that people may employ multiple processes seriously complicates efforts to derive broad normative policy prescriptions from isolated experimental results.'<sup>82</sup> Also, in terms of methodology, experimenters would do well to follow guidance provided by Arlen and Talley and comply with all six criteria set for successful experimental testing of legal rules: Control, Internal Validity, Falsifiability of Theory, Replicability, External Validity and Contextual Attentiveness.<sup>83</sup>

A plausible and serious objection that may be raised here is regarding the need of experiments. Is it not enough to just conduct empirical studies? Well, the answer to this objection is rather straightforward. First, experimental evidence shall be used to complement, verify or nullify

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<sup>79</sup> *E.g.*, John Beshears, James J. Choi *et al.*, 'How Does Simplified Disclosure Affect Individuals' Mutual Fund Choices?' 11 September 2008, available at <http://www.som.yale.edu/faculty/jjc83/summaryprospectus.pdf>, last (last accessed on 20 March 2009).

<sup>80</sup> See Marco Cipriani and Antonio Guarino 'Herd Behavior in Financial Markets: An Experiment with Financial Market Professionals' IMF Working Paper 141/08, June 2008. Their research comes to validate to some degree older experimental evidence on the impact of herding. Lisa R. Anderson and Charles A. Holt, 'Information Cascades in the Laboratory' (1997) 87 *American Economic Review* 847-862.

<sup>81</sup> Arlen and Talley, above n 31, xxviii.

<sup>82</sup> *Ibid* xviii.

<sup>83</sup> *Ibid* xxxii.

empirical research and not as a self-standing body of evidence. Second, since what is really required to be identified here is why market actors behave in particular way, while in possession of full information, rather than how market actors behave in the same circumstances, such evidence is difficult to be derived from empirical studies. Third, assessing how market actors process information is a rather complex issue and will also require the conduct of qualitative studies (interviews, questionnaires) to accompany/interpret empirical data observations. However, qualitative studies in this context are open to manipulation by the subjects of the study, who will probably lie in many contexts in order to present themselves much more 'clever', alert, or rational and much less prone to peer pressure than their actual market behaviour would indicate. On the other hand, in the controlled environment of an experiment, using real life subjects, many of these problems may be overcome. This makes experiments very useful and reliable method to gauge the actual impact of disclosed information on market actors' behaviour, though their results shall be a useful basis for law reform only if they do not conflict with the results of quantitative empirical studies.

It is hoped that, following the conduct of the discussed extensive empirical and experimental studies, a new framework for the use of disclosure, as a regulatory technique in capital markets, will emerge. One of the issues that will have to be addressed is financial product complexity. Important steps are already taken in this area with respect to increased product standardization and enhancement of clearing and settlement infrastructure. These initiatives are bound to improve the transparency of the market for structured credit securities and complexity may well stop being the problem that it proved to be during the global financial crisis. However, experiments may also prove helpful in this area, if what is tested is whether complex financial contracts should, at any rate, be marketed and sold to certain investor classes.

The above observation leads us to one of the thorniest questions that experiments on the effectiveness of disclosure regulation must address. Is disclosure enough with respect to the investment decisions taken by certain classes of retail investors, who present limited financial sophistication and are also at the lower ranks of the earnings and education ladder? On the basis of present evidence, there is room for a prediction that experiments may lead to the conclusion that

disclosure of information under whatever format or technique may have to be complemented with soft paternalism mechanisms,<sup>84</sup> such as a default investment/savings option.<sup>85</sup> These, in turn, may be inserted by a public or other non-profit consumer body in relevant financial contracts.

The assumption that simply modifying the volume of disclosed information may have an imperceptible impact on investor behaviour is re-enforced by a recent experiment conducted by Laibson, Choi *et al* on the way individuals may use the proposed by the SEC ‘summary prospectus’ to be issued by mutual funds. The main objective of this proposal was to improve retail investors’ processing and digestion of product information, something that is not usually possible with the bulky and very detailed full prospectus that mutual funds are obliged to issue. The experiment, where subjects were Harvard staff, showed that ‘the Summary Prospectus [did] not meaningfully alter subjects’ investment choices. Average portfolio fees and past returns [were] similar whether or not subjects receive[d] the Summary Prospectus.’ The welfare gains the authors identified were in relation to spending less time to read the prospectus and wasting less paper, not exactly the gains intended by the SEC when it proposed the Summary Prospectus.<sup>86</sup>

Accordingly, in the absence of a default option, disclosure of information alone, in whatever format or volume, may not be enough to counter individuals’ tendency to prefer instant gratification over long-term rewards, which, of course, fosters speculation, and their general exhibition of limited self-control. However, this finding raises a more general question as to who should have the duty to

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<sup>84</sup> Colin Camerer, Samuel Issacharoff *et al.* ‘Regulation for Conservatives: Behavioral Economics and the Case for “Asymmetric Paternalism”’ (2003) 151 *University of Pennsylvania Law Review* 1211-1254.

. For an analysis of possible uses of soft paternalism mechanisms to protect investors see Emiliios Avgouleas, ‘Reforming Investor Protection Regulation: The Impact of Cognitive Biases’, in M. Faure & F. Stephen (eds), *Essays in the Law and Economics of Regulation in Honour of Anthony Ogus* (Hague: Intersentia, 2008), 143-176.

<sup>85</sup> From the ever expanding literature on the effect of defaults on savings planning see James J. Choi, David Laibson, Brigitte C. Madrian, and Andrew Metrick, ‘Optimal Defaults’ (2003) 93 *American Economic Review*, 180—185 and by the same authors ‘For Better or For Worse: Default Effects and 401(k) Savings Behavior’ in *Perspectives in the Economics of Aging*, David A. Wise, ed. (Chicago, IL: University of Chicago Press, 2004). For the active choice of defaults by the financially literate see Gabriel D. Carroll, James J. Choi, David Laibson, Brigitte C. Madrian, and Andrew Metrick, ‘Optimal Defaults and Active Decisions’ (2009) 124 *Quarterly Journal of Economics* (forthcoming, November 2009).

<sup>86</sup> See Beshears, Choi *et al.*, above n 79.

scrutinize financial products targeting the unsophisticated retail investor market and be responsible for the identification of the right default option.

Harvard Professor Elizabeth Warren suggested in an article in 2007 that the US mortgage catastrophe would have been averted if there was an independent financial products watchdog guarding against hazardous financial products such as adjustable rate subprime mortgages.<sup>87</sup> This is an idea that has been embraced by US Congress,<sup>88</sup> where Warren now heads the Congressional Oversight panel for the Trouble Asset Relief Programme (TARP), and adopted by the Obama administration. Thus, there is an expectation that legislation will soon be introduced establishing an independent financial products commission.

Of course, the EU did not have a subprime mortgages scandal. On the other hand, just expecting brokers and other financial advisors to act as champions of consumer protection for their clients, based on MiFID's investor suitability regulations and other conduct of business rules,<sup>89</sup> which oblige providers and sellers of financial products to disclose as much information as possible for the products' nature and risk and ascertain whether that's suitable for the customer's risk profile, is an inadequate protection mechanism. Relevant rules do not work properly, first, because of broker/financial advisor expected tendency to avoid complying with them, where possible, no less due to the complexity of relevant rules, and , second, because of the explained above limited ability of consumers to understand what is disclosed and act on such information in a rational way. Therefore, an independent experts/consumers watchdog that would advise, scrutinize, and recommend options for financial products, rather than regulate them or prohibit them from entering the market, as the US proposals seems to suggest, could be, on the basis of the preceding discussion, a very positive development. Given the structure of the internal market for financial services and the ability of

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<sup>87</sup> Elizabeth Warren, 'Unsafe at Any Rate' (2007) *Democracy a Journal of Ideas*, available at <http://www.democracyjournal.org/article.php?ID=6528>

<sup>88</sup> Durbin, Schumer, Kennedy ask Treasury to Support Creation of a Financial Product Safety Commission? Press Release, April 24, 2009, available at [http://schumer.senate.gov/new\\_website/record.cfm?id=311958](http://schumer.senate.gov/new_website/record.cfm?id=311958)

<sup>89</sup>

financial services firms to offer financial products on a cross-border basis, such an agency would be effective only if it has a formal pan-European standing.

## **5. Conclusion**

The old disclose and self-regulate paradigm in financial markets is dead, no less because of its role in bringing about the current global financial catastrophe. However, this does not diminish the value of disclosure as regulatory technique it simply calls for a substantial overhaul of its processes, volume, timing, and format, in order to make it more effective. This paper has undertaken the bold task of considering disclosure's future in the aftermath of the global financial crisis. It has attempted to incorporate into the new disclosure paradigm of European financial regulation the lessons learnt by the crisis.

The paper's findings show that premising EU banking regulation on disclosure and market discipline was a flawed approach. Disclosure can have an effective role in EU banking regulation only as a supplement to strict protective rules that limit the kind of activities an institution may undertake and restrain its risk-taking appetite. Furthermore, it has been argued that the disclosure conundrum in capital markets shall only be resolved if disclosure rules are subjected to extensive and rigorous empirical and experimental studies. It is possible that such studies will show that, in spite of the existence of extensive disclosure regimes, certain classes of individual investors also need to be aided by the introduction of default choices and this is a role that should be assigned to an independent pan-European body that is not susceptible to regulatory capture.

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